



Dart Hawkesbury
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D6028-195
Job Sheet 164905



5017738

Part No: D6028-195

Job Qty: 16 ea

Part Name: Crosstube Material, 7075-T6



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 9/30/17

Job Tracking No:

Due Date: 10/31/17

Created By: Mario Poulin

Type: Stock

Description:

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Due Date	Standard		Workcenter/Supplier	
				Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time
90	Start up Operation	16 Ea	10/31/17	0.00	0.00		
100	Purchasing	16 pcs	10/31/17	0.00	0.00	SPA-D-6	
110	Packaging	16 pcs	10/31/17	0.00	0.00	SPA-D-6	
120	QC	16 pcs	10/31/17	0.00	0.00		
140	Packaging	16 pcs	10/31/17	0.00	0.00		
150	QC21-SA	16 Ea	10/31/17	0.00	0.00		

Part Op 100 - Issue P/O: _____ a) Order as per Dwg D6028 b) Material cert's is required
Descriptions: 110 - Ensure material certification is attached
120 - Ensure Material certification comply to Dwg

Job Allocations

Operation	Component Part	Required	Inventory	Allocated	Std Qty
90-Start up Operation	D6028-195P	16	0	0	0

Part Specifications

Specifications could not be found.

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____ Date : _____ Ste: _____ Description Work Order: _____	DISPOSITION Rework ☐ Scrap ☐ DART AEROSPACE S017944 Crosstube Material, 7075 – T73/T73511 PART NO: D6028 – 195 Revision: Operation: Packaging Change No:	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Cross tube ☐ Small Fab ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Engineering ☐ Quality ☐ Other ☐ Dart Aerospace Ltd. 1270 Aberdeen Street Hawkesbury, ON K64 1K7 CANADA TEL.: 1 613 632-5200 Email: sales@dartaero.com www.dartaerospace.com MRB (QS1042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval
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Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mis-labeled ☐ Fit/Function ☐ Misaligned/off center ☐ Mfg Date: 12/06/17 Job No: 164905 Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐ OTHER : ☐
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Work Order ID 164905

164905

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Wednesday, August 09, 2017 11:32:27 AM

Item ID: D6028-195 Accept *N900040100* Setup Start *NS1*
 Revision ID: PRELIM Stop *NS2*
 Item Name: Crosstube Material, 7075-T6
 Start Date: 8/10/2017 Start Qty: 16.00 *16* Cust Item ID:
 Required Date: 12/13/2017 Req'd Qty: 16.00 *16* Customer:
 Reference:

Approvals: Process Plan: DAS 13 Date: AUG 09 2017 Tooling: Date: Run Start *NR1*
 QC: 9-89 Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D6028	

100 0.00

100 PURCHASING 16 AUG 09 2017 DAS 13 9-89

Purchasing Memo 0.00

Purchasing Issue P/O: 37363

a) Extrude as per Dwg D6028 length = 195" (Ref. D6028-195)

b) Material: 7075-T73/T73510/T733511 (WW-T-700/7 or QQ-A-225/9 or QQ-A-200/11)) Seamless aluminum tube

c) Minimum ultimate tensile strength = 68ksi

d) Minimum tensile yield strength = 58ksi

Ensure material certification is attached

110 Receive & Inspect for Damage & Mat'l Certs 0.00

110

Packaging Memo 0.32

Packaging Ensure material certification is attached

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Quality Control

Picklist Print

Wednesday, August 09, 2017 11:32:25 AM

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Work Order ID: 164905

164905

Parent Item: D6028-195

D6028-195

Parent Item Name: Crosstube Material, 7075-T6

Start Date: 8/10/2017**Required Date:** 12/13/2017

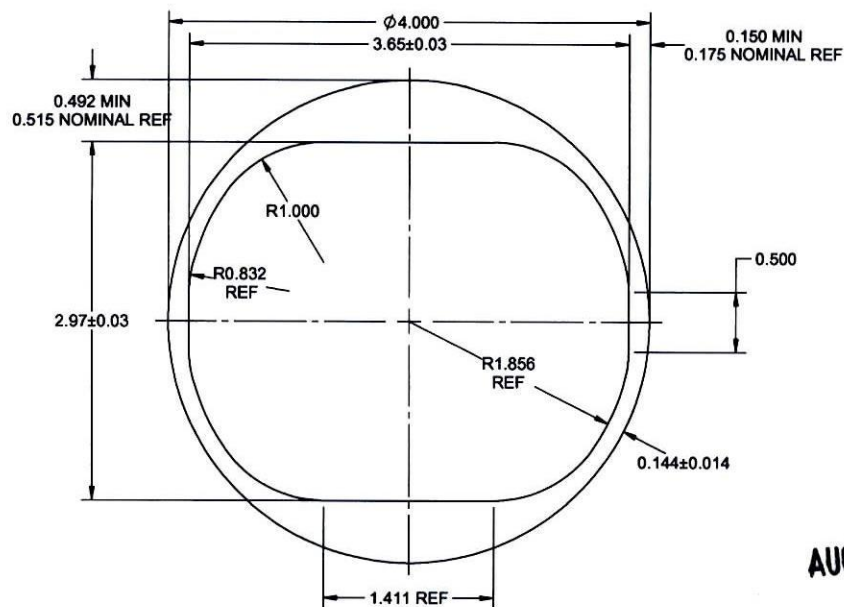
Start Qty: 16.00

Required Qty: 16.00

Comments: IPP REV:A NEW ISSUE 16-12-14 JLM VERIFIED BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6028-195P		Purchased	No				Each	0.0000		16			
D6028-195P									**				
Crosstube Material, 7075-T73													

SPECIFICATION CONTROL DRAWING



D6028-XXX TUBE

WHERE XXX IS LENGTH IN INCHES
EG. 195" LONG TUBE: D6028-195

AUG 09 2017

DAS
13
9-89

W10' 164905

NOTES:

- 1) MATERIAL: 4.000" OD 7075-T73/T73510/T73511 SEAMLESS ALUMINUM TUBE
PER (WW-T-700/7 OR QQ-A-225/9 OR QQ-A-200/11 OR ASTM B210 OR ASTM B241)
MINIMUM ULTIMATE TENSILE STRENGTH = 68 KSI
MINIMUM YIELD TENSILE STRENGTH = 58 KSI
- 2) FINISH: NONE
- 3) TOLERANCES: PER ANSI H35.2 AS FOLLOWS:
O.D.: +/- 0.016" MEAN (+/- 0.024" INCLUDING OVALITY)
LENGTH: XXX +0.5/-0.000"
STRAIGHTNESS: 0.010" DEVIATION / 12" LENGTH
TWIST: 7" MAXIMUM OVER TOTAL LENGTH, 5" OVER 1/2 LENGTH, 3" OVER 1/4 LENGTH
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.307 LB/IN
- 8) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.

PRELIMINARY ISSUE

REV.	NO	DESCRIPTION	BY	DATE
A	NEW ISSUE			16.12.08
DESIGN	NO	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA		
DRAWN	NO			
CHECKED	CP	DRAWING NO.	REV. A5	
MFG. APPR.	LL	D6028	SHEET 1 OF 1	
APPROVED		TITLE	SCALE	
DE APPR.		TUBE, SEAMLESS, 7075-T73	NTS	
DATE	16.12.08	COPYRIGHT © 2016 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.		



Dart Hawkesbury
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

PO037977

Supplier: ALU001-VU
Aluminiumwerk Unna AG
630-3033 SOUTH PARKER RD
AURORA, CO 80014 USA
Phone: 303 755 5672
Fax: 303 755 5936

PO No: PO037977

PO Date: 10/6/17

Due Date: 12/13/17

Purchase Order

Revision:

Revision Date:

Ship-To Contact: Baker, Diane Phone:
dbaker@dartaero.com

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pymt Terms: Net 30

Freight Terms:

Special Comments: PO37363

REVISED
\$

OCT 26 2017

Items													
Line Item	Part	Rev	Supplier Part No	Item No	Description	Item Tax	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	D6028-195P				Crosstube Material, 7075-T73 receive pcs		Firmed	12/13/17	16 Ea	0 Ea	16 Ea	\$693.28/Ea	\$11,092.48
Line Item Note B164905													
												Grand Total: \$11,092.48	

recu 18x
60A-12-5

Order Notes

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail please visit www.dartaerospace.com for further explanation.

Plex 10/26/17 10:17 AM dart.lavoie.chantal

Packing List Aluminiumwerk Unna AG

Page 1 of 1



Order		Article		Box marking								
Commission-No.:	66522	Outer Diameter (Inch):	0,000	DART AEROSPACE / P.O. 37363 / D6028-195P MADE IN GERMANY / DEST.: HAWKESBURY ONT, CANADA								
Item No.:	100	Inner Diameter (Inch):	0,000									
Customer PO:	P037363	Wall (Inch):	0,000									
Customer:	Dart Aerospace	Length (Feet):	16,25									
Date:	13.09.2017	Drawing:	0									
Comments:	We hereby declare, that the wooden packing material are totally free from bark and apparently free from live plant pests.											
Box No.	Boxdimensions				Total number of pieces and weights				Cast/Heat-Groups in the box			
	Length (Inch)	Width (Inch)	Height (Inch)	Volume (cbm)	Pieces	Net lbs	Tare lbs	Gross lbs	Position	Pieces	Cast-No.	Heat-No.
1	208,662	22,441	22,441	1,722	7	410,059	302,033	712,092		7	7218	402379
Total:				1,722	7	410,059	15,432	712,092		7		

80A42-5

DAS
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9-89

Packing List Aluminiumwerk Unna AG

Page 1 of 1



Order		Article		Box marking								
Commission-No.:	66522	Outer Diameter (Inch):	0,000	DART AEROSPACE / P.O. 37363 / D6028-195P MADE IN GERMANY DEST.: HAWKESBURY ONT, CANADA								
Item No.:	200	Inner Diameter (Inch):	0,000									
Customer PO:	PO37363	Wall (Inch):	0,000									
Customer:	Dart Aerospace	Length (Feet):	16,25									
Date:	13.10.2017	Drawing:	0									
Comments:	We hereby declare, that the wooden packing material are totally free from bark and apparently free from live plant pests.											
Box No.	Boxdimensions				Total number of pieces and weights				Cast/Heat-Groups in the box			
	Length (Inch)	Width (Inch)	Height (Inch)	Volume (cbm)	Pieces	Net lbs	Tare lbs	Gross lbs	Position	Pieces	Cast-No.	Heat-No.
1	208,662	22,441	22,441	1,722	11	661,386	304,238	965,624	Top	4	7219	402393
									Bottom	7	87610	402393
Total:				1,722	11	661,386	24,251	965,624		11		

SP17-125.

Abnahmeprüfzeugnis 3.1 - DIN EN 10204:2005

Inspection Certificate 3.1 - DIN EN 10204:2005 / Certificat de Reception 3.1- DIN EN 10204:2005

Kunde: Dart Aerospace Ltd.

Client:

1270 Aberdeen Street
K6A1K7 Hawkesbury, ON Canada

Zeugnisnummer:

Cert No.: / No. du certificat:

Bestellnummer: PO37363

Order No. / No. de commande

Auftrag: 66522/100

Our Reference/Notre Reference:

Produkt:

Profile nahtlos gepresst

Product / Produit:

Profiles seamless extruded

Spezifikation:

AMS - QQ - A - 200/11A; -

Specification:

Werkstoff:

7075

Alloy/Alliage:

Zustand: T 73

Temper/Etat

x 4953,000 mm

Abmessung

x
Size / Dimension D6028-195P XA 12253

Lieferung

Delivered Material / Matériel délivré:

pcs.

lbs

Country of Manufacture: Germany

Products are in accordance with applicable RoHS

1. Chemische Analyse

Chemical Analysis / analyse chimique

Charge/ Cast No.	min. max.	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni	Na
		0,40	0,50	1,2 2,0	0,30	2,1 2,9	0,18 0,28	5,1 6,1	0,20						
7218/17		0,103	0,206	1,509	0,055	2,261	0,206	5,823	0,033	0,003	0,0197	0,0001	0,0024	0,0050	0,0006

Hydrogen content: 0,15

ccm/100 g Al Elements without indication < 0,01 %

country of melt manufacturer: Germany

2. Mechanische Eigenschaften

Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) ksi	yield (Rp0,2) ksi	elongation 2" %	elongation A 4D %	Hardness HB	Electrical conductivity (IACS)
	68,0	58,0		7,0		
1	74,0	64,4		11,7		39,9
2	74,5	64,8		13,1		40,7

DA
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9-89

Corrosion protection Brayco 300

RMS 25 µ" - max. 14,7 µ"

Ergebnis der Prüfungen:

Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht

Test results:

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order

Resultats:

Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

mergardtri

Certified acc. DIN EN ISO 9001:2008 and DIN EN 9100:2009

valid until 2019-11-10

TÜV Nord - Cert.- Req. No.: 44 100 131576 and 44 117 131576

14.09.2017

Aluminiumwerk Unna AG, Uelzener Weg 36, 59425 Unna, Germany



ALUnna

Abnahmebeauftragter

Abnahmeprüfzeugnis 3.1 - DIN EN 10204:2005

Inspection Certificate 3.1 - DIN EN 10204:2005 / Certificat de Reception 3.1- DIN EN 10204:2005

Kunde: Dart Aerospace Ltd.

Client:

1270 Aberdeen Street
K6A1K7 Hawkesbury, ON Canada

Zeugnisnummer:

Cert No.: / No. du certificat:

Bestellnummer: P037363

Order No. / No. de commande

Auftrag: 66522/200

Our Reference/Notre Reference:

Produkt:

Product / Produit:

Profile nahtlos gepresst

Profiles seamless extruded

Spezifikation:

Specification:

AMS - QQ - A - 200/11A; -

Werkstoff:

Alloy/Alliage:

7075

Zustand:

Temper/État

T 73

Abmessung

Size / Dimension

x
D6028-195P XA 12253

x 4953,000 mm

Lieferung

Delivered Material / Matériel délivré:

pcs.

lbs

Country of Manufacture: Germany

11

661

Products are in accordance with applicable RoHS

1. Chemische Analyse

Chemical Analysis / analyse chimique

Charge/ Cast No.	min. max.	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni	Na
87619		0,07	0,14	1,57	0,05	2,46	0,21	5,84	0,04						0,0001

Hydrogen content: 0,05

ccm/100 g Al Elements without indication < 0,01 %

country of melt manufacturer: Germany

7219/17	0,095	0,182	1,562	0,051	2,435	0,207	5,850	0,035	0,003	0,0201	0,0001	0,0025	0,0050	0,0002
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Hydrogen content: 0,15

ccm/100 g Al Elements without indication < 0,01 %

country of melt manufacturer: Germany

2. Mechanische Eigenschaften

Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) ksi	yield (Rp0,2) ksi	elongation 2" %	elongation A 4D %	Hardness HB	Electrical conductivity (IACS)
	68,0	58,0		7,0		
1	76,8	67,3		14,8		39,5
2	76,2	66,2		12,9		39,5

Corrosion protection Brayco 300

RMS 25 µ" - max. 15,7 µ"

Ergebnis der Prüfungen:

Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht

Test results:

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order

Resultats:

Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

mergardtri

Certified acc. DIN EN ISO 9001:2008 and DIN EN 9100:2009

valid until 2019-11-10

TÜV Nord - Cert.- Req. No.: 44 100 131576 and 44 117 131576

ALUnna

Abnahmebeauftragter

16.10.2017

Aluminiumwerk Unna AG, Uelzener Weg 36, 59425 Unna, Germany